DEPARTMENT of ENVIRONMENTAL SERVICES
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

| | | | |
|---|---|---|---|
| Lake: | COLD POND | Lake Area (ha): | 5.99 |
| Town: | ANDOVER | Maximum depth (m): | 5.5 |
| County: | Merrimack | Mean depth (m): | 2.4 |
| River Basin: | Merrimack | Volume ($m^3$): | 141500 |
| Latitude: | 43°27'18" N | Relative depth: | 2.0 |
| Longitude: | 71°51'04" W | Shore configuration: | 1.15 |
| Elevation (ft): | 1081 | Areal water load (m/yr): | 25.34 |
| Shore length (m): | 1000 | Flushing rate ($yr^{-1}$): | 10.70 |
| Watershed area (ha): | 298.5 | P retention coeff.: | 0.45 |
| % watershed ponded: | 0.0 | Lake type: | artificial |

| BIOLOGICAL: | | 6 January 1994 | 6 August 1993 |
|---|---|---|---|
| DOM. PHYTOPLANKTON (% TOTAL) | #1 | NO PHYTOPLANKTON | XANTHIDIUM 35% |
| | #2 | SAMPLES ANALYZED | SPHAEROCYSTIS 20% |
| | #3 | | |
| PHYTOPLANKTON ABUNDANCE (cells/mL) | | | 1745 |
| CHLOROPHYLL-A (µg/L) | | | 3.42 |
| DOM. ZOOPLANKTON (% TOTAL) | #1 | NO ZOOPLANKTON | CALANOID COPEPOD 43% |
| | #2 | SAMPLES ANALYZED | |
| | #3 | | |
| ROTIFERS/LITER | | | 16 |
| MICROCRUSTACEA/LITER | | | 38 |
| ZOOPLANKTON ABUNDANCE (#/L) | | | 56 |
| VASCULAR PLANT ABUNDANCE | | | Scattered |
| SECCHI DISK TRANSPARENCY (m) | | | 5.0 |
| BOTTOM DISSOLVED OXYGEN (mg/L) | | 7.6 | 7.5 |
| BACTERIA (E. coli, #/100 ml) | #1 | | 1 |
| | #2 | | < 1 |
| | #3 | | |

SUMMER THERMAL STRATIFICATION:

not stratified

Depth of thermocline (m): None
Hypolimnion volume ($m^3$) : None
Anoxic volume ($m^3$) : None

**CHEMICAL:**

**Lake: COLD POND**
**Town: ANDOVER**

| | 6 January 1994 | | 6 August 1993 | | |
|---|---|---|---|---|---|
| DEPTH (m) | 2.0 | 4.0 | 1.0 | | 4.0 |
| pH (units) | 5.6 | 5.6 | 6.2 | | 6.3 |
| A.N.C. (Alkalinity) | 1.4 | 2.1 | 2.0 | | 2.0 |
| NITRATE NITROGEN | 0.02 | 0.05 | < 0.02 | | < 0.02 |
| TOTAL KJELDAHL NITROGEN | < 0.10 | 0.10 | 0.41 | | 0.53 |
| TOTAL PHOSPHORUS | 0.012 | 0.006 | 0.008 | | 0.014 |
| CONDUCTIVITY (μmhos/cm) | 25.8 | 26.0 | 20.1 | | 19.8 |
| APPARENT COLOR (cpu) | 8 | 9 | 8 | | 8 |
| MAGNESIUM | | | 0.36 | | |
| CALCIUM | | | 1.4 | | |
| SODIUM | | | 1.2 | | |
| POTASSIUM | | | < 0.40 | | |
| CHLORIDE | < 2 | < 2 | < 3 | | < 3 |
| SULFATE | 5 | 5 | 4 | | 4 |
| TN : TP | | 25 | 51 | | 38 |
| CALCITE SATURATION INDEX | | | 4.7 | | |

**All results in mg/L unless indicated otherwise**

**TROPHIC CLASSIFICATION: 1993**

| D.O. | S.D. | PLANT | CHL | TOTAL | CLASS |
|---|---|---|---|---|---|
| ** | 2 | 1 | 0 | 3 | Oligo. |

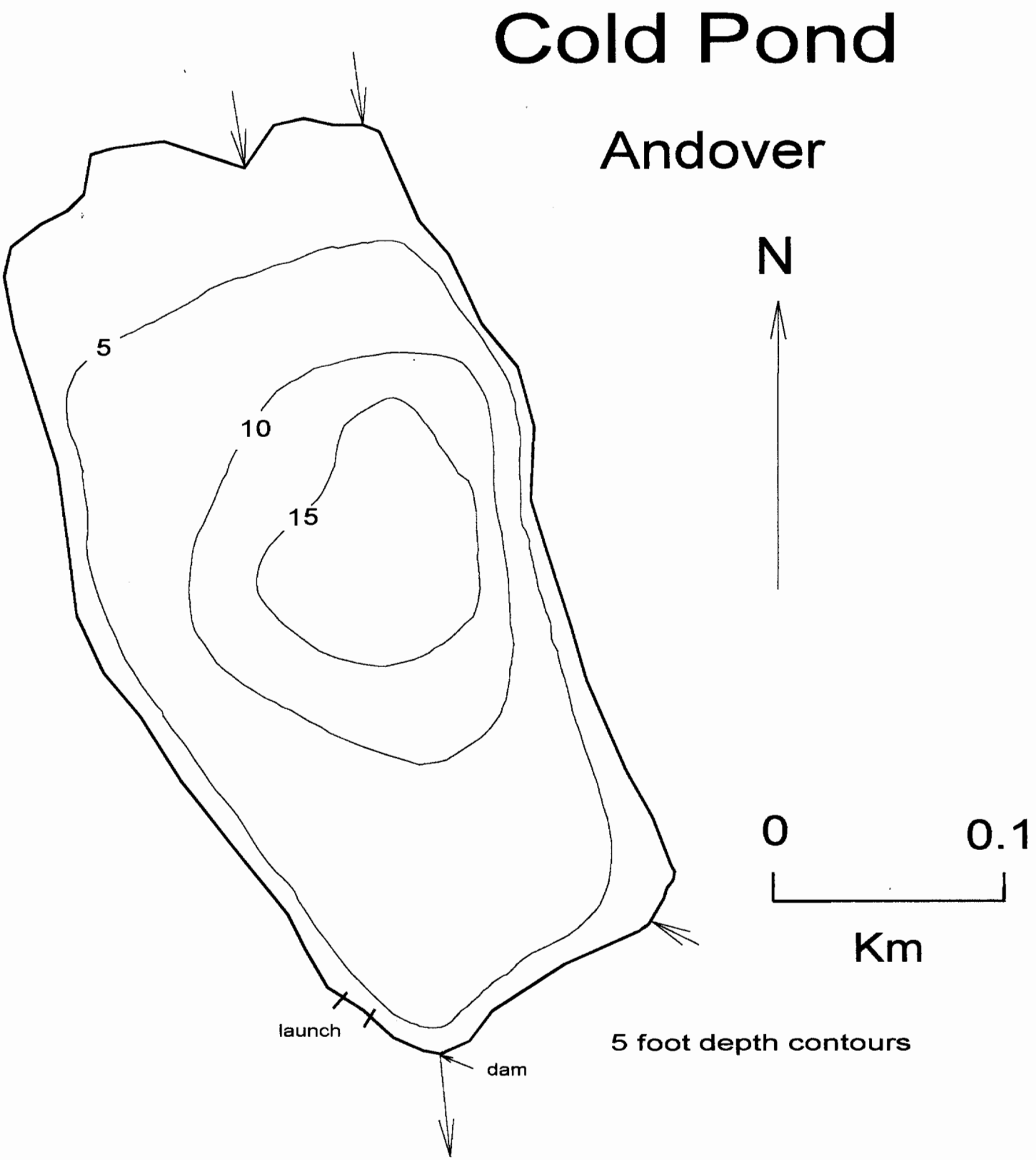
**COMMENTS:**

1. This is a man-made private trout pond owned by the Ragged Mountain Fish and Game Club. The club calls the pond "Cole" Pond, but it is "Cold" Pond on the topographic maps and in lake and pond publications.

2. The Club has placed an aerator in the bottom of the pond to maintain uniform temperature and dissolved oxygen values throughout the pond. In 1947, prior to an aerator, there was an oxygen deficit at the bottom of the pond (2.7 mg/L).

3. A launch for small boats was present; motors are not allowed on the pond.

4. The blue-green alga Aphanocapsa (85%) was the dominant wholewater phytoplankton.


Cold Pond
Andover
N
5
10
15
0
0.1
Km
launch
dam
5 foot depth contours

## FIELD DATA SHEET

LAKE: COLD POND
DATE: 08/06/93

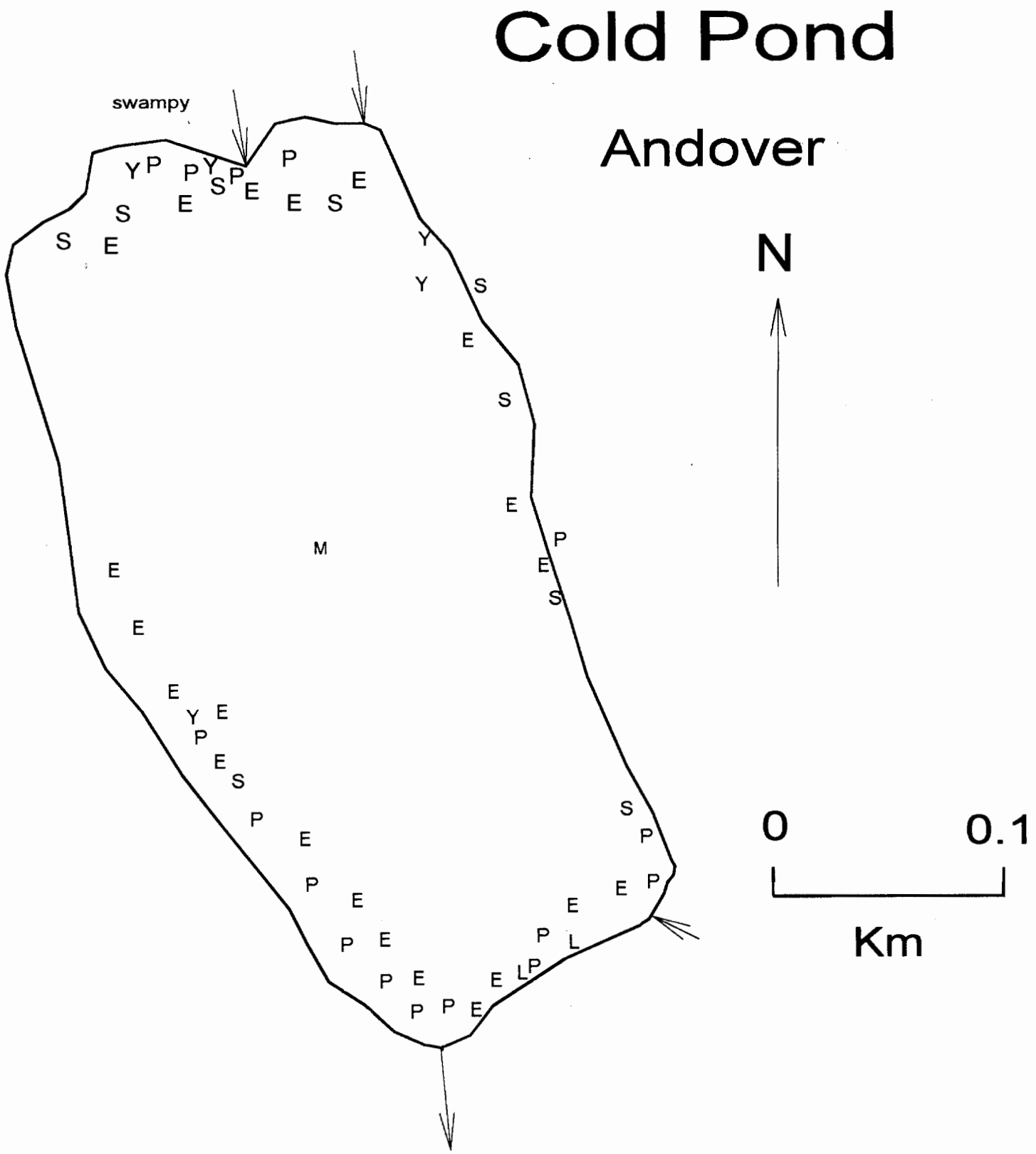
TOWN: ANDOVER
WEATHER: MOSTLY SUNNY & WINDY; 75F

| | DEPTH (M) | TEMP (°C) | *DISSOLVED OXYGEN | OXYGEN SATURATION |
|---|---|---|---|---|
| | 0.1 | 23.0 | 7.8 | 90 % |
| | 1.0 | 22.8 | 7.8 | 88 % |
| | 2.0 | 22.7 | 7.8 | 88 % |
| | 3.0 | 22.5 | 7.8 | 88 % |
| | 4.0 | 22.2 | 7.5 | 85 % |
| | 5.0 | 22.0 | 7.5 | 85 % |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

SECCHI DISK (m): 5.0
BOTTOM DEPTH (m): 5.5
TIME: 1100

COMMENTS:

*Dissolved oxygen values are in mg/L


Cold Pond
Andover
swampy
N
0
0.1
Km

## AQUATIC PLANT SURVEY

LAKE: COLD POND TOWN: ANDOVER DATE: 08/06/93

| Key | PLANT NAME | | ABUNDANCE |
|---|---|---|---|
| | GENERIC | COMMON | |
| P | Pontederia cordata | Pickerelweed | Scattered |
| E | Eriocaulon septangulare | Pipewort | Scattered |
| S | Sparganium | Bur reed | Sparse |
| Y | Nuphar | Yellow water lily | Sparse |
| M | MUSCI | Aquatic moss | Common |
| L | Lobelia dortmanna | Water lobelia | Sparse |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**OVERALL ABUNDANCE: Scattered**

**GENERAL OBSERVATIONS:**

1. The aquatic moss was probably over much of the bottom, but was very low growing so not a nuisance.
2. No camps on the pond. Wetlands were at the northern, inlet end and a beaver lodge was observed.
3. The beach area is treated with 200 pounds of lime each year for leech control; it probably has no effect on leeches but may help counteract acid rain.